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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,900	09/29/2003	Robert F. Bartfai	TUC920030109US1	4827

35825 7590 01/23/2009

LAW FIRM OF DAN SHIFRIN
6208 Devinney Circle
ARVADA, CO 80004

EXAMINER	
MYINT, DENNIS Y	

ART UNIT	PAPER NUMBER
2162	

NOTIFICATION DATE	DELIVERY MODE
01/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DAN-SHIFRIN@COMCAST.NET

Office Action Summary	Application No.	Applicant(s)	
	10/674,900	BARTFAI ET AL.	
	Examiner	Art Unit	
	DENNIS MYINT	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/30/2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Applicant's Amendment, filed on October 30, 2008.

2. Claims 1-29 are currently pending in this application. Claims 1, 9, 14, and 22 are independent claims. In the Amendment filed on October 30, 2008, claims 1, 2, 9, 14, 22, and 23 were amended. **This office action is made final.**

3. In light of the amendments made to claims 1 and 2, claim objections raised in the prior office action is hereby withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-8 and 14-21 are all rejected under 35 U.S.C. §112, First Paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As per claim 1, the claim in line 5 recites "upon the primary PPRC

volumes forming a new consistency group". However, the specification of the claimed invention fails to describe/recite how said "new consistency group" is "formed on the primary PPRC volumes. Nowhere in the specification could be found any step/method/process which forms a new consistency group on the primary PPRC volumes. As such, claim 1 is rejected under 35 U.S.C. 112 first paragraph because the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

All the dependent claims claim 1 are all rejected under 35 U.S.C. 112 first paragraph by virtue of their dependency on claim 1.

Claim 14 in lines 11-14 recites "an application executing on the **secondary** storage controller, the application comprising instructions for: transferring data updates from at least one host device to the primary PPRC volumes". According to Figure 1 of the specification of the instant application (U.S. Patent Application Publication Number 2005/0071372), the application which performs the steps of transferring data updates from at least one host device is located on "the **primary** storage controller" (item 102 of Figure 1). As such, there is proper antecedent for "an application executing on the **secondary** storage controller, the application comprising instructions for: transferring data updates from at least one host device to the primary PPRC volumes". As such, said claim language "an application executing on the **secondary** storage controller, the application comprising instructions for: transferring data updates

from at least one host device to the primary PPRC volumes") is not supported by the specification. Therefore, claim 14 is rejected under 35 U.S.C. 112 first paragraph because the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

All the dependent claims claim 14 are all rejected under 35 U.S.C. 112 first paragraph by virtue of their dependency on claim 14.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 22-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

8. Claims 22-29 are directed to "a computer program product of a computer readable medium usable with a programmable computer". The claims fail to place the invention squarely within one statutory class of invention. On page 11 of the instant specification, applicant has provided evidence that applicant intends the "medium" to include programmable logic, etc. signal. As such, the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter.

Applicant stated in the arguments filed on October 30, 2008, that "*claim **22 has been amended to address the § 101 rejection by specifying that the recited computer readable medium is limited to a "storage" medium"*** (Applicant's argument, page 10 third paragraph).

However, it is respectfully pointed that NO amendment whatsoever was made to specify that the recited computer readable medium is directed to a storage medium.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milillo et al., (hereinafter "Milillo", U.S. Patent Number 6643671) in view of Asselin et al., (hereinafter "Asselin", "Implementing Concurrent Policy", IBM

Document Number GG24-3990-00, December 1993) and further in view of Taylor (U.S. Patent Application Publication Number 2004/0220981).

As per claim 1, Milillo is directed to "a method for protecting consistency groups during a data storage backup operation" (Milillo, Figure 2) and teaches the limitations:

"transferring data updates from a host device" (Milillo, Figure 2: *Host 42*) **"to a plurality of primary Peer-to-Peer (PPRC) volumes on a primary PPRC unit"** (Milillo, Figure 2: *Source Volume 52*) (Also note Milillo, Column 7 Line 1-25, i.e., *Referring next to FIG. 2, a block diagram of the preferred accumulation remote copy trio architecture according to the present invention is shown, denoted generally by reference numeral 40. As seen therein,* ***a host 42*** *is provided in communication with primary storage subsystem 44 via communication path 46. Primary storage subsystem 44 is also provided in communication with a secondary storage subsystem 48 via communication path 50. Primary storage subsystem 44 includes a source storage volume 52, which is provided in communication with a* ***primary target storage volume 54****. Secondary storage subsystem 48 includes a* ***secondary storage volume 56****, which together with primary target storage volume 54 comprise an established PPRC volume pair as previously described. Source volume 52, primary target volume 54, and secondary volume 56 together comprise the preferred accumulation remote copy trio. It should be noted that FIG. 2 depicts a single PPRC volume pair (primary target volume 54 and secondary volume 56) and a single source volume 52 for the sake of simplicity only. As those of ordinary skill*

will appreciate, additional PPRC volume pairs and source volumes may also be included. Primary storage subsystem 44 and secondary storage subsystem 48 are disk systems in these examples, although tape or other storage systems known in the art may also be used);

"**upon the primary PPRC volumes forming a consistency group, transferring the primary PPRC volumes to FlashCopy source volumes on a secondary PPRC unit**" (Milillo et al. Figure 2, "Primary Target Volume" 54; Note that Milillo recites in column 7 lines 1-25 that *It should be noted that Fig. 2 depicts a single PPRC volume pair (primary target volume 54 and secondary volume 56) and a single source volume 52 for the sake of simplicity only. As those of ordinary skill will appreciate, additional volume pairs and source volumes may also be included.* Thus, in the method and system of Milillo, additional volumes can be placed on both primary and secondary systems. Therefore, "Primary Target Volumes" of Milillo (Milillo Figure 2, Primary Target Volume 54) maps to "PPRC Primary Site Storage Volumes" of the claimed invention (Specification of the claimed invention, Figure 1, PPRC Primary Site Storage Volumes 116 (i.e., the primary volumes" in line 5 of claim1 of the application)) and "Secondary Volume" of Milillo (Milillo Figure 2, Secondary Volume 56) maps to "FlashCopy Source volumes on a secondary PPRC unit" (i.e., item 118 (PPRC secondary site storage volumes (FlashCopy source volumes)) of Figure 1 of the specification of the claimed invention).

Milillo does not explicitly teach the limitations:

"attempting to prepare each FlashCopy source volume for a FlashCopy operation to corresponding FlashCopy target volumes on which a prior consistency group is retained, the attempt including imposing a write-inhibit indicator on each FlashCopy source volume",

"committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes" "if the preparation of all FlashCopy source volumes is successful, whereby the prior consistency group retained in the FlashCopy target volumes is replaced by the new consistency group; and

"reverting the FlashCopy operation if the preparation of any FlashCopy source volume is unsuccessful, whereby the prior consistency group is maintained in the FlashCopy target volumes".

On the other hand, Asselin teaches the limitation:

"attempting to prepare each FlashCopy source volume for a FlashCopy operation to corresponding FlashCopy target volumes on which a prior consistency group is retained, the attempt including imposing a write-inhibit indicator on each FlashCopy source volume" (Asselin, Page 2-3, Asselin teaches a method of concurrent copy wherein source is not available for access for a short period of time while concurrent copy process initialized. Asselin Page 2 recites " *when you use concurrent copy, application processing* ***is interrupted*** *only for a short period while the system initializes the concurrent copy environment* and Page 3, i.e., *The* ***system serializes*** *access to the data being dumped or copied long enough for the concurrent copy session to be*

initialized. Therein, it is evident in the method of concurrent copy as taught by Asselin that **write-inhibit indicators are imposed during the initialization period of the concurrent copy process**. Additionally, page 6 of Asselin teaches multiple source volumes and target volumes as "*From the perspective of the host, a concurrent copy session can include multiple data sets and span multiple volumes and storages controls. A data set can participate in multiple sessions. A session remains in effect until DFSMSdss transfers all tracks in the domain from the storage control to the host and copies them to the backup media (*Asselin page 7 fourth paragraph). Moreover, fifth paragraph on page 6 of Asselin teaches "*the SDM includes ranges of tracks for each volume in the domain. When the 3990 has transferred all tracks in range to the host system, the SDM removes those tracks from the concurrent copy session".* Also note Figure 4 of Asselin wherein concurrent system overview is presented. As such, **one of a plurality of targets volumes in the system/method of Asselin maps to "FlashCopy target volumes" of the claimed invention**, i.e., item 120 of Figure 1 of the specification of the claimed invention.),

"committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes, whereby the prior consistency group retained in the FlashCopy target volume is replaced by the new consistency group" (As discussed above, "Primary Target Volumes" of Milillo (Milillo Figure 2, Primary Target Volume 54) maps to "PPRC Primary Site Storage Volumes" of the claimed invention (Specification of the claimed invention, Figure 1, PPRC Primary Site

Storage Volumes 116 (i.e., the primary volumes" in line 5 of claim1 of the application)) and "Secondary Volume" of Milillo (Milillo Figure 2, Secondary Volume 56) maps to "FlashCopy Source volumes on a secondary PPRC unit" (i.e., item 118 (PPRC secondary site storage volumes (FlashCopy source volumes)) of Figure 1 of the specification of the claimed invention). Additionally, one of a plurality of targets volumes in the system/method of Asselin maps to "FlashCopy target volumes" of the claimed invention, i.e., item 120 of Figure 1 of the specification of the claimed invention. Therefore, if the system/method of Asselin is combined with the system/method of Milillo, the combined method would commit to copy consistency group from sources volumes to corresponding target volumes).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Milillo for data copying using consistency groups with the methods of Asselin which teaches copying sources volumes to target volumes with write-inhibitors so that, in the combined method, write operations on source consistency group volumes would be made unavailable by way of using write-inhibitors (i.e. preparing the consistency groups for FlashCopy). One would have been motivated to do so in order to "reduce the amount of time that is required to back up application data, hence increasing the time available for online service" (Asselin et al., Page 2 Second Paragraph).

Milillo in view of Asselin does not explicitly teach the limitations:

"(committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes) if the

preparation of all FlashCopy source volumes is successful", (whereby the prior consistency group retained in the FlashCopy target volumes is replaced by the new consistency group) (Herein, Note that limitations in the parentheses (i.e., "committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes" and "whereby the prior consistency group retained in the FlashCopy target volumes is replaced by the new consistency group" are taught by Milillo in view of Asselin as discussed above) ; and

"reverting the FlashCopy operation if the preparation of any FlashCopy source volume is unsuccessful, whereby the prior consistency group is maintained in the FlashCopy target volumes".

On the other hand, Taylor teaches **"if a preparation of a copy/backup operation is successful, committing said copy/back operation"** and **"if not, reverting said copy/backup operation by retaining a prior database"** (Taylor Paragraph 0040, i.e., *The Acquire stage 208 FIG. 5 is performed to prepare the system to allow the backup process to take place. The first step 216 is to determine if an online backup has been requested.* ***If so, then the system prepares the database for online backup 218,*** *which is described in reference to FIG. 9 below. The results of the online backup preparation are determined in step 220.* ***If the online backup preparation was successful, the processing is complete****, step 214. However* ***if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup preparation****, step 222, which is*

described in reference to FIG. 10. When that is complete, the processing is complete, step 214").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the features of determining if a preparation of a copy/backup operation is successful and committing said copy/back operation if it was successful" and "if not, reverting said copy/backup operation by retaining a prior database", as taught by Taylor, to the method of Milillo in view of Asselin so that, in the combined method, write operations on source consistency group volumes would be made unavailable by way of using write-inhibitors (i.e. preparing the consistency groups for FlashCopy) and mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be committed if preparations of consistency groups are successful and reverted if said preparation is not successful. One would have been motivated to do so in order to "reduce the amount of time that is required to back up application data, hence increasing the time available for online service" (Asselin et al., Page 2 Second Paragraph) and to "*provide a safe and effective backup* " (Taylor, Paragraph 0015).

Referring to claim 2, the method and system of Milillo in view of Asselin and further in view of Taylor as discussed above with regard to claim 1 discloses the invention as claimed. Particularly, Asselin in view of Taylor teaches the limitation:

"wherein imposing the write-inhibit a write-inhibit indicator prevents the reception of data updates by the FlashCopy source drive transmitted from the PPRC source device during a FlashCopy operation" (Asselin, Page 2-3 teaches write-inhibitors and Taylor, Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

Referring to claim 3, the method and system of Milillo in view of Asselin and further in view of Taylor as discussed above with regard to claim 1 discloses the invention as claimed. It is inherent in the method and system of Milillo in view of Asselin and further in view of Taylor that write-inhibitors would be released if the preparation of all FlashCopy source volumes is successful and, as such, teaches the limitation:

"further comprising releasing the write-inhibit indicators if the preparation of all FlashCopy source volumes is successful" (Asselin, Page 3, i.e. "After logical completion, the data is once again available for unrestricted application access; and Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful*).

Referring to claim 4, Milillo in view of Asselin and further in view of Taylor teaches the limitation:

"wherein the step of preparing each FlashCopy source volume for a FlashCopy operation comprises generating an Establish-FlashCopy-Revertable command" (Taylor, Figure 10: *222 Release Database from Online Preparation* and Paragraph 0042, i.e., *the Release stage*).

Referring to claim 5, Milillo in view of Asselin and further in view of Taylor teaches the limitation:

"wherein the step of committing the FlashCopy operation comprises generating a Withdraw-FlashCopy-commit command" (Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful* and Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

Referring to claim 6, Milillo in view of Asselin and further in view of Taylor teaches the limitation:

"wherein the step of reverting the FlashCopy operation comprises generating a Withdraw-FlashCopy-revert command" (Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful* and Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

As per claim 7, Milillo in view of Asselin and further in view of Taylor teaches the limitation:

"the method further comprises deciding after an attempt to prepare each FlashCopy source volume whether the preparation is successful; and the reverting step comprises reverting the FlashCopy operation following any unsuccessful preparation" (Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful* and Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

Claim 8 is rejected on the same basis as claim 7.

Claim 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29 are rejected on the same basis as claim 1, 2, 3, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, and 8 respectively.

Response to Arguments

12. Applicant's arguments filed on October 30, 2008, regarding the rejection of claims 1-29 under 35 U.S.C. 103 (a) have been fully considered but they are not persuasive.

Applicant stated in the arguments filed on October 30, 2008, that " ***claim 22 has been amended to address the § 101 rejection by specifying that the recited computer readable medium is limited to a "storage" medium"*** (Applicant's argument, page 10 third paragraph).

However, it is respectfully pointed that NO amendment whatsoever was made to specify that the recited computer readable medium is directed to a storage medium.

Referring to rejection of independent claims under 35 U.S.C. 103(a), Applicant argued that *"The Applicant respectfully again traverses the rejection under §103. The Applicant again asserts that the FlashCopy function to which the present invention pertains is different from the concurrent copy discussed in some of the cited references, such as Asselin. The concurrent copy function enables a copy of data to be made while an application is updating that data. The copy is "in a consistent form, as it existed before the updates took place ... as though the updates had not occurred." (Asselin, pg. 1) Data is copied concurrently with normal operations.* ***By contrast, when the FlashCopy function used in the present invention is invoked, a FlashCopy relationship is established between a source volume (to which a copy of the data has been transferred from the primary storage unit, as explained in paragraph***

23 of the Specification) *and a target volume, thereby providing a mapping of the source volume and target volume to allow a point-in-time copy (based on consistency groups) of the source volume to be copied to the target volume. The operation is nearly instantaneous and copies are "immediately" available for read and write access. Consequently, the Applicant reiterates that FlashCopy and concurrent copy are different functions and the latter should not be used to render the former obvious" (*Applicant's argument page 10 fourth paragraph*).*

Examiner respectfully disagrees all of the allegations as argued. Examiner, in his previous office action, gave detail explanation of claimed limitation and pointed out exact locations in the cited prior art. Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification. See MPEP 2111 [R-1] Interpretation of Claims-Broadest Reasonable Interpretation.

During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).

In response it is pointed out that in the independent claims of the instant application, "**FlashCopy volume**" is NOT limited/defined so that a person of ordinary skill in the art would understand what said "FlashCopy" is meant to be. In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is respectfully noted that the feature upon which applicant relies (i.e., What **"FlashCopy volume"** is) is not recited in the rejected claim(s). **Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims**. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As such the above-argument is moot.

Applicant also argued that "*The Office Action also asserts that Asselin teaches "imposing a write-inhibit indicator on each FlashCopy source volume" (page 10). Page 3 of Asselin is cited: "The system serializes access the data being dumped or copied just long enough for the concurrent session to be initialized." However, the term "serialize" implies that access is continues, though perhaps in a different fashion than during a normal operation and thus teaches away from write-inhibiting"* (Applicant's argument page 10 last paragraph through page 11 first paragraph).

In response, it is pointed out that Asselin, Page 2-3, Asselin teaches a method of concurrent copy wherein source is not available for access for a short period of time while concurrent copy process initialized. Asselin Page 2 recites " *when you use concurrent copy, application processing **is interrupted** only for a short period while the system initializes the concurrent copy environment* and Page 3, i.e., *The **system serializes** access to the data being dumped or copied long enough for the concurrent copy session to be initialized*. Therein, it is evident in the method of concurrent copy as taught by Asselin that **write-inhibit indicators are imposed during the initialization period of the concurrent**

copy process. Additionally, page 6 of Asselin teaches multiple source volumes and target volumes as "*From the perspective of the host, a concurrent copy session can include multiple data sets and span multiple volumes and storages controls. A data set can participate in multiple sessions. A session remains in effect until DFSMSdss transfers all tracks in the domain from the storage control to the host and copies them to the backup media* (Asselin page 7 fourth paragraph). Moreover, fifth paragraph on page 6 of Asselin teaches "*the SDM includes ranges of tracks for each volume in the domain. When the 3990 has transferred all tracks in range to the host system, the SDM removes those tracks from the concurrent copy session".* Also note Figure 4 of Asselin wherein concurrent system overview is presented.

Applicant also argued that "*With respect to the assertion that Taylor teaches committing a FlashCopy operation if the preparation is successful and reverting the FlashCopy operation is the preparation is not, Taylor teaches merely "releasing the database from backup preparation" (paragraph 40). "Releasing" a database is different from the claimed "reverting" the FlashCopy operation"* (Applicant's argument, page 11 second paragraph).

In response it is respectfully pointed that Milillo in view of Asselin does not explicitly teach the limitations: "(committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes) *if the preparation of all FlashCopy source volumes is successful*", (whereby the prior consistency group retained in the FlashCopy target volumes is replaced by the new consistency group) (Herein, Note that

limitations in the parentheses (i.e., "committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes" and "whereby the prior consistency group retained in the FlashCopy target volumes is replaced by the new consistency group" are taught by Milillo in view of Asselin as discussed above) ; and *"reverting the FlashCopy operation if the preparation of any FlashCopy source volume is unsuccessful, whereby the prior consistency group is maintained in the FlashCopy target volumes"*.

However, Taylor clearly teaches that **"if a preparation of a copy/backup operation is successful, committing said copy/back operation"** and "**if not, reverting said copy/backup operation by retaining a prior database"** (Taylor Paragraph 0040, i.e., *The Acquire stage 208 FIG. 5 is performed to prepare the system to allow the backup process to take place. The first step 216 is to determine if an online backup has been requested.* ***If so, then the system prepares the database for online backup 218,*** *which is described in reference to FIG. 9 below. The results of the online backup preparation are determined in step 220.* ***If the online backup preparation was successful, the processing is complete****, step 214. However* ***if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup preparation****, step 222, which is described in reference to FIG. 10. When that is complete, the processing is complete, step 214"*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the features of determining if a preparation of a copy/backup operation is successful and committing said copy/back operation if it was successful" and "if not, reverting said copy/backup operation by retaining a prior database", as taught by Taylor, to the method of Milillo in view of Asselin so that, in the combined method, write operations on source consistency group volumes would be made unavailable by way of using write-inhibitors (i.e. preparing the consistency groups for FlashCopy) and mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be committed if preparations of consistency groups are successful and reverted if said preparation is not successful. One would have been motivated to do so in order to "reduce the amount of time that is required to back up application data, hence increasing the time available for online service" (Asselin et al., Page 2 Second Paragraph) and to "*provide a safe and effective backup* " (Taylor, Paragraph 0015).

In view of the above, the examiner contends that all limitations as recited in the claims have been addressed in this Action. For the above reasons, Examiner believed that rejections of the last office action and current office action are proper.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/dennis myint/

Dennis Myint
Examiner
AU-2162

/John Breene/

Supervisory Patent Examiner, Art Unit 2162